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FTC/DOJ Hearings on
“Competition and Intellectual Property Law and Policy
in the Knowledge-Based Economy”

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The FTC’s “Notice of Public Hearing,” Chairman Muris’ speech, and the various topics that have been discussed at these hearings raise a number of issues that are particularly significant to the semiconductor industry.

INCREASED PATENTING

The last ten years or more have seen a large increase in the number of patents issued annually in the United States, as is evident from the statistics released by the USPTO. This trend includes the semiconductor industry. How does one account for this increase?

Causes

Many people believe intuitively that there must be a close connection between the rate of R&D spending and the rate of patenting. During the last ten years, in the semiconductor industry, and most certainly in other industries as well, there has indeed been a steady increase in the annual rate of R&D spending. At Texas Instruments, for example, annual patent filings, over the last ten years or more, generally have tracked R&D spending.

Another factor accounting for the increase in patent filing has been the globalization of the world economy. Many companies now file patent applications in several countries for the same invention. This has resulted in many foreign companies filing patent applications in the United States for inventions made outside the U.S.. In the year 2001, for example, more than half of the top twenty-five companies acquiring patents were foreign companies.

Yet another factor in increased patenting may be an increase in patent litigation. Many companies are now using patents in litigation more than at any time in the recent past. This may create a perceived need for more patents.

My impression is that patent litigation among semiconductor companies has been on the increase in recent years. A quick study of patent lawsuits filed annually in the United States by or against 21 large, mostly U.S., semiconductor companies, found that the total number of new patent lawsuits filed by or against the companies in 1996 was nine. In each subsequent year the number of new patent lawsuits increased so that by 2001, the number of new patent lawsuits filed in that year had reached 39.

An increase in the rate of cross licensing may be another factor influencing the upward trend in patenting. More cross license activity means an increased need for patents to use as trading material. I believe that the rate of cross licensing, in the semiconductor industry at least, has increased in recent years. Most patent cross licenses are entered into without publicity, so it is difficult to know with certainty. But a good guess would be that the increase in patent litigation during the period 1996-2001 signals a corresponding increase in patent licensing during the same period. The number of licenses entered into without litigation may have exceeded the number of lawsuits, since, as experience has shown, more patent disputes end up being resolved without litigation than require litigation. Such resolution usually takes the form of a cross license.

"Patent Thickets"

Some have suggested that the large number of issued patents has created "patent thickets" around technology areas that must be penetrated in order to compete in those areas.

But the presence of a "patent thicket" in a given area of technology reflects the fact that the USPTO has determined that there are numerous different patentable innovations in that area. In other words, a "patent thicket" presumably reflects the presence of a corresponding "technology thicket." It is not surprising that some technology areas involve more innovations than others, and may have "patent thickets" associated with them. Integrated circuits are a good example, where a single silicon device may have millions of transistors.

"Patent thickets" do not hinder commercialization. They may be evidence of commercialization. Companies often file patent applications to protect new products they plan to market, so that "patent thickets" in many instances are indicators of areas of concentration where many products exist or are planned.

"Patent thickets" are not impenetrable. Newcomers selling products into an area surrounded by a "patent thicket" may be too small for patent holders to bother to sue or attempt to license, or often they can get licenses from the various owners of the patent thicket. After they themselves have become technology contributors and have patents of their own, those patents can be used as trading material to obtain necessary patent licenses.

"Patent thickets" may encourage others to develop improvements on the patented technology and to get patents covering the improvements. The improvement patents may then be used as trading material to obtain licenses from the "patent thicket" patent owners.

"Patent thickets" also encourage "design-around" which creates alternative technologies that accomplish the same result (often better and cheaper). The motivations for design-around are usually royalty avoidance, so that the newly designed product will by definition cost the maker less than the royalties being avoided. This may result in a lower cost product for consumers. Experience has shown that the need to design-around can result in innovative new ways of approaching an old problem. Without the need to design-around, simple inertia and practicalities such as the necessity of qualifying a new product with customers can be a barrier to innovation. The new design-around technology will eventually have its own patents.

Finally, "patent thickets" are not as dense as they may appear. I have found a good rule of thumb to be that for every one hundred patents, only a few will ever prove useful in licensing or litigation. That ratio of course is only a generalization and may be highly inaccurate in specific cases. But experience has shown that it often gives a good sense of the number of patents that may be important when evaluating a large number of patents such as in a "patent thicket."

There are probably many reasons for such a low ratio of useful patents. The primary reason may be that many patents do not cover actual products. That is, often the patented innovation is never used by others. Another reason is that patent claims may be too narrow or miss what later turns out to be the important point of an innovation. At the time that an innovation is made it is difficult to know whether it will be important enough to warrant seeking a patent, and if so, which features of the innovation to claim.

BROAD PATENTS

An important patent is likely to be broader than patents of lesser importance if the reason for its importance is that it is a pioneering or basic patent. There should naturally be less prior art relevant to a pioneering or basic innovation than would be the case for an innovation of lesser importance, so the scope of the claims of the important patent should extend farther. That is a proper reward for someone who undertakes the costly and speculative enterprise of developing basic technology.

Broad patents encourage follow-on innovation in industries such as the semiconductor industry. The holders of useful improvement patents have a lot of leverage for obtaining licenses under favorable terms from the holder of the broad patent. Without a license from the holder of the improvement patent, the holder of the broad patent may be unable to use the most effective technology. The parties will often enter into a cross license agreement in these situations.

"Patent Flooding" in Japan is an extreme example. "Patent flooding" is a term that was coined several years ago to characterize the practice of some Japanese companies which would literally file dozens (sometimes hundreds) of patent applications covering every conceivable improvement, they could think of at the time, to a basic, broad invention covered in a Japanese patent application (discovered through the laid open patent application eighteen months after filing). They would then negotiate a license from the holder of the basic patent on very favorable terms.

My general impression is that I do not see a lot of unjustifiably broad patents, although I do see some. In any event if the USPTO is issuing bad patents, or the CAFC is too lenient on patent holders, it should be up to those organizations to address the problems directly, rather than to ask the FTC to take a band aid approach. That conclusion would also be reached by application of comity between Government agencies.

If I had to pick an area where I think the USPTO could improve the most it would be in the area of searching for prior art. Especially, non-U.S. art. If one compares the USPTO with the European Patent Office and the Japanese Patent Office, both the EPO and JPO do a better job of searching the prior art. I don't think that this disparity in searching is a new phenomenon in the last five years, however.

The USPTO is underfunded and understaffed, and in the past has not been able to keep all the fees it collected. The USPTO also has trouble keeping experienced patent examiners due to salary competition with private law firms and industry.

Having said that, the USPTO nonetheless does a pretty good job overall.

PATENTS AND INNOVATION

Strong IP rights encourage improvements and design-around alternative technologies, as has been discussed above in the Patent Thickets section.

Widespread follow-on innovation requires widespread dissemination of knowledge about the current technology. Patent publications accomplish this to a degree that would not happen without the patent system. Without patents, trade secrets would become the preferred form of legal protection for many technologies, especially process and manufacturing technologies which are not easily discovered or reverse-engineered. Absent patent publications (especially English language counterparts filed in the U.S.), the technological developments in "closed societies," such as Japan, would be largely inaccessible to U.S. scientists and engineers.

REFUSAL TO LICENSE

I don't see a need for a change in the law relating to refusal to license. Along with the ability to obtain an injunction, refusal to license is at the heart of the patent system, even though, in the semiconductor industry at least, there are relatively few instances of refusals to license. Patent licensing is the most common use for patents in the semiconductor industry.

PATENT CROSS LICENSING

Patent cross licensing occurs frequently in the semiconductor industry. The form of cross licensing which occurs most often in the semiconductor industry is the portfolio cross license. A portfolio cross license between two parties is the mutual licensing of substantially all their patents worldwide to each other, to make, use and sell certain products. The licensed products may include virtually all products or may be restricted to certain products. The underlying rationale for portfolio cross licensing is that each of the parties to the license has or may have multiple patents in multiple countries covering one or more of the products of the other party. A single product may infringe multiple patents of the other party in the country of manufacture, in each country into which that product is imported or sold and resold through distribution, and finally in the country in which the product is incorporated as part of another product or is otherwise used. Each party to a cross license may have thousands of patents worldwide. Under such conditions, it is impractical to seek or take licenses piecemeal under single patents or in single countries only. For a discussion of portfolio cross licensing, see *TEXAS INSTRUMENTS, INC. v. HYUNDAI ELECTRONICS INDUSTRIES, CO. LTD., et al*, 49 F.Supp.2d 893.

Some portfolio cross licenses recognize that each party is filing, and will continue to file during the life of the license agreement, a large number of patent applications on a worldwide basis. There is a substantial likelihood that a license will be necessary under patents which have not yet issued but will issue during the life of the agreement. This form of portfolio cross license includes all worldwide patents issued (or, possibly, filed) prior to the expiration of the agreement.

Cross licenses are common in settlements of patent disputes, including litigation. Many disputes, especially litigation, create a strong desire for patent peace on the part of both parties. In litigation settlements and in any case where a company's significant patents are to be licensed to another party, it would amount to unilateral disarmament not to require a license back from the party to be licensed. The standards setting environment, where standards organization members undertake to license all comers on fair and nondiscriminatory terms, is also a case where reciprocal licenses back are important, on the same theory that the licensor cannot afford to disarm unilaterally.

STANDARDS ORGANIZATIONS

At least one standards organization requires member companies to disclose patents and patent applications which are relevant to standards up for adoption. An obligation, on the part of a corporation with thousands of patents, to search and identify patents relevant to a particular standard, places a huge burden on the corporation.

It is incredibly time consuming to search through a large number of patents in order to identify which patents may be relevant. The claims of every patent searched have to be correctly construed. The claims of even a single patent may be difficult to construe, and is a task over which even patent attorneys often disagree. Anyone who has ever been involved in a Markman hearing to construe patent claims during litigation is intimately familiar with this. Likewise, the same is true for those who have participated in patent license negotiations. The problem is compounded by the fact that most people who attend standards committee meetings are engineers and not patent lawyers.

Some have suggested that the solution is to over-disclose, that is, when in doubt, disclose a patent or application as being relevant. Such a solution would end up providing meaningless data -- one might as well list some large percentage of one's whole patent portfolio. This is nearly the situation now existing in wireless standards organizations, where individual companies often list hundreds of patents and patent applications.

In the case of patent applications, all the previously mentioned difficulties are compounded by the fact that until very late in the life of an application, when the application is ready to issue, the patent claims are still in a state of flux and are not known with certainty.

Some standards organizations have taken the position that a patent should be unenforceable against products complying with a standard in any case where the patent or application was not disclosed to the standards organization, even in cases where the failure to disclose was unintentional. I believe that to render a patent unenforceable against products complying with a standard is too harsh a penalty for unintentionally failing to cite it as relevant. I think that the best solution is to require members to license their patents on fair and nondiscriminatory terms for a reasonable royalty, provided that the potential licensee is willing to reciprocate with a similar license back.

If a given standards organization and its members agree that it is best for their specific organization to impose a duty to disclose patents or applications, it should be limited to the personal knowledge of the members attending the committee meeting, and the knowledge of others in the corporation should not be imputed to the attendees. If there is a duty by the corporation to search for "relevant" patents and applications, then "relevance" should be defined to include only those patents and applications primarily directed to the subject matter of the proposed standard. Unintentional failure to disclose should be curable by subsequent disclosure by the patent owner upon discovery of the failure. Discovery of the failure may be made by the patent owner, or may occur through notice from a third party (including members of the standards organization).